Appl. No. 09/672,705
Reply to Office Action dated March 31, 2004

REMARKS/ARGUMENTS

New Abstract

The new abstract being submitted is in compliance with U.S.P.T.O. requirements.

Introduction to Applicant's Invention

Applicant's system is dealing with layer 1 frames, for example OFDM symbols (see page 1, line 9), and layer 2 frames which may be variable length and which may not be a fixed multiple of the layer 1 frame (see page 1 line 26). Rather than forcing the layer 2 frame to be a fixed multiple of the layer 1 frame length, it has become common to allow the layer 2 frame to have a variable length thereby avoiding the potential wastage which would occur otherwise.

In a variable length layer 2 frame, the length information is located in the header of the layer 2 frame, so the receiver knows the end of the frame as well as the beginning of the next frame. Disadvantageously, when the header is in error, the receiver does not know where the next frame starts, and consequently will lose data in subsequent layer 2 frames until a new layer 2 frame boundary is detected.

Applicant's claim 1 recites a solution to this problem. Layer 1 frames are modified prior to transmission by adding layer 2 boundary information indicating whether there is a layer 2 header within the layer 1 frame, and indicating where in the layer 1 frame the layer 2 header begins. This is completely contrary to stacked protocol convention where a lower layer is designed independent of an upper layer. After a layer 2 frame is received in error, it is possible to identify the next layer 1 frame containing the beginning of a layer 2 frame, to locate the header, and perform proper processing of the next layer 2 frame. In this manner, only the single layer 2 frame is received in error, and layer 2 reception can continue correctly with the next layer 2 frame because it is known WHERE the header is within the stream of layer 1 frames.

102(e) Rejection based on EP 0942569 Doshi et al (Doshi)

In paragraph 3 of the detailed action, the Examiner has rejected claims 1-5, 11-14, 16-22, 24-28, 30 and 31 under 35 U.S.C. 102(e) as being anticipated by Doshi et al.

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To begin, Doshi does not teach layer 1 frames and layer 2 frames with non-aligned boundaries. Doshi does not address nor recognize a problem of locating layer 2 headers of layer 1 frames within a sequence. Doshi teaches SDL packets that have a payload. The SDL packets have a header with a length field indicating how long the packet is and allowing boundary detection to be performed. Since synchronization is being performed on the SDL packets, it seems that these would be considered layer 1 frames. It is clear that the payload of Doshi is not considered by a protocol layer, and that the SDL packets are in fact layer 1 frames. See for example claim 1 which refers to a "signal representing a stream of packets, each packet comprising a header portion and a payload portion". This certainly has the appearance and functionality of layer 1. Having said that, there are clear arguments that distinguish the claimed subject matter from Doshi regardless of whether the SDL packets are labeled layer 1 or layer 2 frames.

Lets consider the SDL packets to be layer 1 frames. The inclusion of length information in the SDL packet (such as shown in Figure 1 - length indicator field L1) does not allow the determination of whether a higher layer frame has a header in a given SDL packet, nor does it allow a determination of the position of such a header within the SDL packet. There is no discussion of higher protocol layers in Doshi. As such, for this interpretation of SDL packets, Doshi clearly does not teach the subject matter of claim 1.

For the sake of argument, consider now that SDL packets are layer 2 frames, and that the contents are layer 1 frames. In this case, the layer 2 headers have length information as is typical for layer 2 frames. However, the layer one content, the so-called "variable length datagrams" referred to in paragraph 21 of Doshi, does not have information added to it that allows a determination of whether the layer 1 frame contains a layer 2 header or not, nor does it include information allowing a determination of the location of a layer 1 header.

In Doshi, the SDL header information allows a determination of the SDL packet length. However, in applicants claim 1, each layer 1 frame has added to it information pertaining to layer 2 header presence and location within the layer 1 frame. This solves the problem presented at the outset which is not even recognized or appreciated in the Doshi disclosure.

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It has been shown that specific steps recited in claim 1 are not taught in the cited reference. The same arguments apply to the other independent claims rejected under Section 35 U.S.C. 102(e). Furthermore, the remaining claims all depend upon one of the independent claims, and as such the same arguments apply. Furthermore, additional arguments can be made against the dependent claims. However, at this time it is not deemed necessary to present these arguments in view of the fact that the independent claims should be patentable. Applicant is in no way conceding that the additional subject matter recited in the dependent claims is taught in the cited reference.

In paragraph 5 of the detailed action, the Examiner has rejected claims 6 to 8, 15, 23 and 29 under 35 U.S.C. 103(a) as being unpatentable over Doshi et al. in view of Czerwiec et al. All of these claims also depend upon one of the above discussed independent claims and as such should be allowable for the same reasons. Further detailed comments on the additional cited references are not being presented at this time as this should not be necessary in view of the patentability of the independent claims. It is specifically noted that Applicant is not conceding that the additional subject matter recited in these claims is taught in either of the cited references.
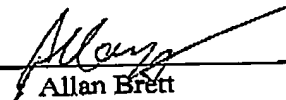
Applicant notes with appreciation the indication by the Examiner that claims 9 and 10 would be allowable if re-written in independent form. In view of the above discussion of claim 1, Applicant has not done this at this time.

In view of the forgoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

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